

6 in relation to the direction of flow in the channel, the microelectrode has a predetermined
7 constant curvature or comprises a multitude of straight electrode sections with
8 predetermined angles in relation to the direction of flow so that the field barrier has a
9 predetermined curvature relative to the direction of flow.

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Cont'd
1 21. The microsystem according to claim 20, in which the electrode
2 arrangement comprises at least two microelectrodes of the same shape and alignment
3 affixed on opposite channel walls, said microelectrodes being in the shape of a curved
4 band.

1 22. The microsystem according to claim 21, in which the
2 microelectrodes depending on the flow profile are curved such that in every section of the
3 field barrier of the microelectrode the resulting force acting on a particle points to a
4 region which is situated upstream in relation to the microelectrode.

1 23. The microsystem according to claim 22, in which four
2 microelectrodes are arranged as focussing electrodes to form a particle funnel.

1 24. The microsystem according to claim 21, in which the
2 microelectrodes depending on the flow profile are curved such that the resulting force
3 acting on a particle from one end of the microelectrode towards the other end describes a
4 change in direction, which leads from a direction in a region situated downstream in

5 relation to the microelectrode, to a direction in a region situated upstream in relation to
6 the microelectrode.

1 25. The microsystem according to claim 24, in which two
2 microelectrodes are provided as sorting electrodes whose field barrier acts in combination
3 with the flow profile of the suspension liquid in the channel such that suspended particles
4 with different passive electrical characteristics can pass the sorting electrodes on separate
5 tracks depending on their characteristics.

1 26. The microsystem according to claim 21, in which on opposite
2 channel walls at least two microelectrodes of the same shape and alignment are provided,
3 each comprising an angle section closed in downstream direction.

1 27. The microsystem according to claim 26, in which the
2 microelectrodes act in combination as collector electrodes.

1 28. The microsystem according to claim 26, in which one group of
2 collector electrodes is arranged in cross direction of the channel.

1 29. The microsystem according to claim 20, in which the
2 microelectrodes are arranged in pairs on the bottom and cover surfaces of the channel.

1 30. The microsystem according to claim 20, in which two
2 microelectrodes are provided on two opposite channel walls, comprising different
3 geometric shapes.

1 31. The microsystem according to claim 30, in which the cross-
2 sectional shape of the channel is rectangular and the microelectrodes are attached to the
3 narrower lateral surfaces and comprise an area-shaped microelectrode on one lateral
4 surface and a band-shaped microelectrode on the opposite lateral surface.

1 32. The microsystem according to claim 31, in which the area-shaped
2 microelectrode is arranged so as to be floating.

1 33. The microsystem according to claim 31, in which the channel is
2 divided into two sub-channels by a separation wall, with the separation wall comprising
3 an aperture in the region of the microelectrodes arranged on the opposite side.

1 34. The microsystem according to claim 20, in which three
2 microelectrodes are provided of which two microelectrodes are arranged as focussing
3 electrodes in the form of band-shaped electrodes converging on a middle line, on the
4 bottom and cover surfaces of the channel, and the third microelectrode is arranged as a
5 field-forming auxiliary electrode spaced apart from the bottom and cover surfaces in the
6 middle of the channel.

1 35. The microsystem according to claim 34, in which the channel is
2 divided into two sub-channels by a separation wall with an aperture upstream in relation
3 to the auxiliary electrode.

1 36. The microsystem according to claim 20, in which on one channel
2 wall a cuboid collecting electrode with a multitude of reservoirs is arranged which acts in
3 combination with a deflection electrode on the opposite channel wall for deflecting
4 particles into the reservoirs.

1 37. The microsystem according to claim 20, in which on one channel
2 wall a multitude of cuboid partial electrodes spaced apart from each other are provided,
3 which electrode arrangement comprises a deflection electrode arranged at the opposite
4 channel wall so as to deflect particles into the spaces between the cuboid partial
5 electrodes.

1 38. Method of using a microsystem according to claim 20 for
2 deflecting, sorting, collecting and/or forming microscopic particles. - -